

# AMERICAN SOCIETY FOR TESTING MATERIALS



## ~ BULLETIN ~

ENGINEERS' CLUB BUILDING.

1315 SPRUCE ST.

PHILADELPHIA, PA.

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JANUARY 30, 1922

### 1922 Annual Meeting

The Twenty-fifth Annual Meeting of the Society will be held at the Chalfonte-Haddon Hall, Atlantic City, N. J., during the week of June 26, 1922. Monday, June 26, will be devoted to committee meetings. The first session will be held on Tuesday morning, June 27, and the closing one either on Friday evening or Saturday morning, July 1.

The selection of Chalfonte-Haddon Hall as headquarters for the meeting was made by the Executive Committee after a thorough canvass. These hotels, which are operated under the same management, afford every facility for the pleasure and comfort of our members and for the success of the meeting. The meetings will be held in the Vernon Room, a part of Haddon Hall especially built for the use of large conventions. Many pleasant rooms are available for our numerous committee meetings.

**Rates.**—Chalfonte-Haddon Hall is operated entirely on the American plan. Special rates for members and their guests are announced below:

ROOMS WITH PRIVATE BATH.	PER DAY.
Room occupied by one person .....	\$10.00
Room occupied by two persons .....	\$13.00 to 18.00

ROOMS WITH RUNNING WATER.	PER DAY.
Room occupied by one person .....	\$6.00 to 8.00
Room occupied by two persons .....	\$12.00 to 14.00

**Reservations.**—While members who desire may reserve their accommodations now, it is believed that most members will wish to defer making their reservations until the program of the meeting has been distributed. A provisional program will be mailed about the end of April with the next BULLETIN, in which further details will be announced.

Attention is here called to the fact that each hotel has its own dining-room service, so that members who may wish to take their meals together should be sure to secure reservations in the same hotel.

**Entertainment.**—Plans for the entertainment of the members and their guests will be announced later. The Golf and Tennis Tournaments will be held as usual on the afternoon reserved for recreation, and other entertainment features will be arranged by the Entertainment Committee, which will again be under the able direction of E. D. Boyer as chairman.

### Interesting Program Being Developed

The Committee on Papers has been working for some time on the program of the coming Annual Meeting. Due largely to the fact that 1921 was the year for triennial publication of the Book of Standards, consideration of standards predominated at the last annual meeting. The committee is therefore arranging the program this year to give greater prominence to technical papers and discussions, and to those features of committee reports not dealing with standards.

There will be a number of topics of live interest to materials engineers. Several of these will appear in committee reports; for others, papers are being solicited from members best qualified to discuss them. As much time as possible will be reserved for general discussion, which the committee believes will add greatly to the interest and value of the meeting. A few of the topics that it is expected to develop in this way are: Effect of Sulfur in Rivet Steel, Physical Properties and Tests of Steel Castings, Impact Testing of Materials, Fatigue of Materials, Specifications for Coal, Thermometry, Inspection of Concrete, and Specifications for Concrete and Reinforced Concrete.

#### Members Invited To Offer Papers

The Committee on Papers desires to secure the aid of the entire membership in making this Annual Meeting the most interesting and valuable ever held. Members who desire to offer a paper on any subject relating to engineering materials are invited to do so, using for that purpose the Return Blank enclosed. All such offers must be accompanied by a summary of the proposed paper, sufficiently in detail to make clear the scope of the paper and bring out the features that make the paper in the opinion of the author sufficiently valuable for presentation and discussion at the meeting.

Members who wish to offer papers are asked to do so promptly. All offers accompanied by a summary and received before March 1, 1922, will be

considered by the Committee on Papers, but consideration of offers received after that date is entirely contingent upon the condition of the program when the offer is received.

Suggestions regarding topics for discussion will also be welcomed by the committee, and may be made on the enclosed Return Blank.

### Members

are especially requested by the  
Executive Committee to read carefully  
the article on page 4 entitled

**Society Publication Problems**

and to answer the enclosed  
Questionnaires referred to therein.

## American Engineering Standards Committee

J. A. Capp has been reappointed a member of the Standards Committee for a term of three years. The Society representatives are now A. A. Stevenson, A. W. Gibbs and J. A. Capp.

The American Railroad Association, Engineering Division, and the Association of American Steel Manufacturers are recently elected members of the Standards Committee.

**Approval of A.S.T.M. Standards.**—Four A.S.T.M. standards were recently approved as Tentative American Standards by the Standards Committee: Standard Specifications for Cold-Drawn Bessemer Steel Automatic Screw Stock (A 32-14) and for Cold-Drawn Open-hearth Steel Automatic Screw Stock (A 54-15), Standard Methods of Chemical Analysis of Manganese Bronze (B 27-19) and of Gun Metal (B 28-19). Thirteen standards have now been thus approved and seven others have been submitted. Twenty additional standards will be submitted in the near future.

**Sponsorships.**—As previously announced, the Society is joint sponsor with the American Zinc Institute for standardization of zinc and zinc ores, and is one of the sponsors for the Sectional Committee on Insulated Wire and Cable, whose organization is described below. The Standards Committee recently designated the Society as sponsor for Cement Specifications and for the Methods of Analysis of non-ferrous metals named above. The U. S. Forest Service and the Society have been designated joint sponsors for the development of methods of testing wood, a project that is being vigorously undertaken in Committee D-7, on Timber.

The Society is also represented on a Sectional Committee on Conductivity of Aluminum by J. M. Darke, and on a Sectional Committee on Aeronautical Safety Code by the Secretary-Treasurer.

**Standardization of Tie Specifications.**—The U. S. Forest Service and the American Railway Engineering Association have been designated as joint sponsors for the standardization of tie specifications. The Society will be represented on the sectional committee through Committee D-7 on Timber.

## Sectional Committee on Insulated Wire and Cable

A sectional committee to standardize insulated wire and cable for other than telephone and telegraph use was organized on January 6, 1922, in the Engineering Societies Building, New York City, under the Rules of Procedure of the American Engineering Standards Committee. Ten national organizations are sponsors for this committee: American Electric Railway Association, American Institute of Electrical Engineers, American Railway Engineering Association, American Society for Testing Materials, Associated Manufacturers of Electrical Supplies, Association of Edison Illuminating Companies, Association of Railway Electrical Engineers, National Board of Fire Underwriters, National Electric Light Association, and National Fire Protection Association. The committee consists of twenty-four members, representing the sponsors and six other cooperating bodies. The representatives of the Society on the committee are W. H. Bassett and F. M. Farmer. The officers and members of the executive committee are W. A. Del Mar, chairman, E. B. Meyer, vice-chairman, F. J. White, secretary, F. M. Farmer, Dean Harvey, E. B. Katte and Dana Pierce. At the organization meeting the following technical committees were appointed: On Definitions, Copper Conductors, Stranding, Rubber Insulation, Impregnated Paper Insulation, Varnished Cloth Insulation, Magnet Wire, Fibrous Coverings, Metallic Coverings, Weatherproof Wire, Standard Make-Ups and Export. The chairmen of the Committees on Copper Conductors and Rubber Insulation are respectively J. A. Capp, chairman of the Society's Committee B-1 on Copper Wire, and F. M. Farmer, chairman of Committee D-11 on Rubber Products.

## Molding Sand Research

Research on molding sand is now being conducted under the joint auspices of the National Research Council and American Foundrymen's Association to determine in what ways foundry practice as to sands may be bettered, and what economies may be realized, not only in reducing expenditure for sand, but also in the decreased number of lost castings and higher quality of accepted product. A committee of some thirty-five members has been organized, representing the many interests in the use of molding sand.

Three sub-committees have been appointed to deal with (1) the formulation of standard tests for determining the working properties of molding sand, (2) reclamation of molding sands and greater use of old sands, and (3) methods of manufacturing synthetic sands.

The Society has been invited to appoint representatives on the committee to aid in the formulation of tests, and the appointment of a standing committee on molding sand is under consideration.

## Research Council Appoints Corrosion Committee.

The National Research Council, through its Division of Research Extension, has recently organized a Committee on Corrosion of the following personnel:

W. M. Corse, Chairman	G. K. Burgess
W. D. Bancroft	D. M. Buck
W. H. Bassett	C. G. Fink
E. M. Chamot	John Johnston

The purpose of the committee is, first, to correlate in a general way all corrosion studies that are being undertaken at the present time in various organizations; and second, to study corrosion from a more fundamental viewpoint than that which actuates most investigations—in other words, to seek the answer to the question: "What and why is corrosion?" The committee will not undertake such investigations as those of Committee A-5 on Corrosion of Iron and Steel or of the proposed Committee on Corrosion of Non-Ferrous Metals and Alloys referred to on page 6. The Research Committee will be kept informed of the work of these two committees through D. M. Buck and W. H. Bassett.

## Corrosion of Underground Pipe

Owing to the loss from corrosive action of the soil in certain districts upon the material of which pipe is made in underground pipe systems, the Bureau of Standards has recently undertaken an extensive investigation of the subject with particular reference to the corrosive action of soils on gas and water mains.

In this investigation, the Bureau has the cooperation of the Bureau of Soils of the Department of Agriculture, the pipe manufacturers, and the public utility companies through the Research Sub-Committee of the American Committee on Electrolysis. Forty locations have been selected representing the different kinds of soils to be found throughout the United States and at each locality a number of samples of every kind of iron and steel pipe in commercial use will be buried. Complete data on the physical and chemical properties of the soil and the pipes will be obtained and extensive laboratory experiments will be conducted to determine the effects of variations and individual characteristics of both soils and pipe materials. Some tests of representative pipe coatings will also be made.

The results of the tests should be of great value in selecting the kind of pipe best suited for use in any particular soil. It is expected that considerable data on the relative rates of corrosion of the different kinds of pipe in the soils under observation will be obtained within a few years, but the investigation will probably continue over a period of ten years.



## Advisory Committee on Non-Ferrous Alloys

The Committee Advisory to the Bureau of Standards on Non-Ferrous Alloys, composed of representatives of the industries and interested technical societies, held a meeting on November 9, 1921, at which a number of topics of interest to the Non-Ferrous industry were discussed. The Society is represented on the committee by William Campbell, W. R. Webster, G. H. Clamer, W. H. Bassett, and N. K. B. Patch. We quote below from a Digest of the Minutes of this meeting:

Attention was called to the work on corrosion of the committee organized under the auspices of the National Research Council. Mr. Warwick stated the American Society for Testing Materials was considering the organization of a Committee on Corrosion of Non-Ferrous Metals which would probably orient its work along engineering lines. The work of the Bureau of Standards on ferrous corrosion problems was mentioned. It was urged that the Bureau continue its work and it was the expression of members of the committee that the study of the corrosion of water pipes should be undertaken and of metals used in the paper industry.

Attention was called to the recent formation, at the initiative of the American Foundrymen's Association, of the molding sand committee to carry on molding sand research. The Bureau will be concerned mainly in the standardization of tests.

The present status of the work at the Bureau on gases in metals was described in detail and the experiences of several of the members of the committee on this subject were given.

The methods for Spectral Analysis of Non-Ferrous Alloys in use at the Bureau were described and the practicability of such analysis for small quantities of impurities was demonstrated, as in the case of tin.

The main discussion on the subject of Roofing (Lead, Zinc, Aluminum, Copper) related to the roofing material of the Washington Cathedral and it was recommended that a lead containing 6 per cent antimony be used.

An investigation at the Bureau on magnetic properties of brass containing iron has been completed and the report showed that the magnetic method is not reliable for quantitative determination of iron in brass.

## Highway Research

On January 16 the Advisory Board of Highway Research of the Engineering Division, National Research Council, held a meeting at which a summary of the work of the Board to date was presented by the Director, W. K. Hatt, and the future work outlined. The work of the Board has been carried out under the supervision of four committees: Economic Theory of Highway Improvements; Character and Use of Road Materials; Structural Design of Roads; Bibliography.

The work of the Committee on Economic Theory of Highway Improvements includes the following:

Economical highway grades, at the Iowa Engineering Experiment Station.

Active resistance of certain types of vehicles and surfaces, also at the Iowa station.

Active resistance of vehicles on concrete road surfaces, including a study of methods of observation and of internal power losses, at Massachusetts Institute of Technology, in cooperation with the Bureau of Public Roads, the Connecticut Highway Department, The Portland Cement Association, and Yale University.

Active resistance in economical grades, at the University of Michigan.

Effect of relative air speed, at Kansas Agricultural College.  
The establishing of the relation between traffic and maintenance cost, by the Bureau of Public Roads.

The work of the Committee on Character and Use of Road Materials is related in some of its aspects to that of our Committee D-4 on Road and Paving Materials, and the latter committee is represented by C. S. Reeve.

The Society is represented on the Advisory Board by Prévost Hubbard, with A. N. Johnson as alternate.

## Investigation of Effect of Sulfur in Steel Progressing

**Rivet Steel.**—Tests to determine the effect of sulfur on rivet steel made at Watertown Arsenal and the U. S. Naval Experiment Station under the direction of the Joint Committee on Investigation of Effect of Phosphorus and Sulfur in Steel, have been entirely completed. Bars, flats and finished rivets from fourteen heats of open-hearth steel, carbon 0.09–0.16 per cent, varying in sulfur from 0.03 to 0.08 per cent, with one heat as high as 0.18, were tested in the natural condition “as received,” in annealed condition and in quenched condition. Publication of complete test data will be made through a technologic paper of the U. S. Bureau of Standards. In the meantime an abstract report of the tests will be released for publication by the Society as an A.S.T.M. preprint, which will contain all of the test data plotted graphically, with sufficient explanation in the text to make the report entirely self-contained.

This report will be ready for distribution by March 1. Members who desire a copy are asked to sign the appropriate return mailing card enclosed and mail it promptly.

**Plate Steel.**—The second group of residual sulfur material in this series comprises plate and structural steels, carbon 0.16–0.22 per cent, with sulfur ranging from 0.03 to 0.08 per cent. Four heats of basic open-hearth steel with sulfurs of 0.04, 0.05, 0.06 and 0.07 on ladle analysis have been made for the Joint Committee by the Cambria Steel Co. The heats run: C, 0.20–0.25; Mn, 0.42–0.46; P, 0.01–0.02. The complete history of each heat is known. After a suitable top discard, plates were rolled as follows:

From each heat six	pieces shear mill plate.....	20 x 96 x	in.
six	"          "          "          ".....	15 x 96 x	in.
three	universal mill plate.....	20 x 96 x	in.
six	"          "          "          ".....	15 x 96 x	in.

Similar material will be furnished from heats of this grade of steel containing 0.03 and 0.08 per cent sulfur.

All material will be tested at the laboratories at Watertown Arsenal and the U. S. Naval Experiment Station.

The Bethlehem Steel Co. has recently completed the manufacture and fabrication of certain steel for this investigation. Three heats of basic open-hearth steel were manufactured having carbon contents of 0.18-0.22, 0.35-0.45 and 0.65-0.75, typifying plate, forging and rail steels respectively. The original sulfur content of each heat was 0.04 per cent or below. Iron sulfide was added during pouring, so that for each carbon content there were secured eight ingots with "added" sulfur contents from 0.04 to 0.15 per cent. Material from the 24 ingots has been furnished for test in the form of 1-in. rounds and flats approximately 4 by 1 in.

In order to compare the effects of "added" and "residual" sulfur, available scrap from three low-sulfur ingots of each heat was remelted, producing steel with "residual" sulfur of approximately 0.08 per cent; and three of the higher sulfur ingots from each heat were remelted, producing steel with residual sulfur of approximately 0.13 per cent. This material will also be fabricated in the form of rounds and flats for tests.

### Pattern Standardization

The General Committee on Standard Pattern Practice,—a joint committee organized under the auspices of the American Foundrymen's Association,—has recently received the report of a special sub-committee on certain phases of pattern standardization. This report deals with the question of colors for painting wood patterns to indicate the metal to be used for the castings, the sizes of dowel pins and of bits used to drill the holes for the dowels, and the taper for coreprints on all patterns, as well as the taper to be used on patterns to enable them to be drawn from the sand. The report also recommends that the shrinkage that metal patterns are made to shall be stamped on the runners.

# A.S.T.M. BULLETIN

Issued January, April, July and October  
by the

AMERICAN SOCIETY FOR TESTING MATERIALS  
Engineers' Club Building, 1315 Spruce St., Philadelphia, Pa.

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Number 4

January 30, 1922

## Society Publication Problems

Several matters touching directly on our publication policies have been discussed in recent meetings of the Executive Committee. It is now desired to place these matters before the members and to obtain an expression of their views for the further guidance of the Executive Committee.

### Distribution of Preprints

"Preprints" refer to the advance copies of committee reports and technical papers printed before the annual meeting. The policy that has obtained since the increase in Society dues in 1916 made it possible, has been to "preprint" all committee reports and papers on the program for the annual meeting; to mail to all members from two to eight weeks in advance of the meeting preprints of all committee reports and of as many technical papers as possible; and to give to each member as he registers at the annual meeting a complete set of preprints for the meeting. This set duplicates those preprints mailed in advance, and contains in addition preprints of any reports and papers received too late for advance mailing. (It should be noted here that the Regulations Governing Standing Committees require at present that preprints of all committee reports be mailed in advance of the meeting.) Thus, for the 1921 annual meeting, 497 pages of reports and 84 pages of papers were mailed in advance to every member, and were also distributed at the meeting, requiring a total of 3700 copies; and 270 pages were distributed at the annual meeting only, requiring 650 copies. In all, 851 pages were preprinted at a total cost, including cost of mailing, of \$3380. This plan of distribution will be designated as **Plan 1**.

Several other plans of distribution have been proposed:

**Plan 2.**—Mail all available committee reports and technical papers to all members in advance of the annual meeting, as under Plan 1; but distribute to each member attending the meeting only those reports and papers not mailed in advance. (Under this plan members would have to bring with them to the meeting printed matter mailed in advance in order to have a complete set of preprints at the meeting.)

**Plan 3.**—Mail all available committee reports to all members in advance of the annual meeting (in consideration of present requirements of our Regulations); mail in advance to members only those technical papers that they have requested be sent to them; and distribute a complete set of reports and papers to each member attending the meeting.

**Plan 4.**—Mail to members in advance of the annual meeting only those reports and papers that they have requested be sent to

them; and distribute a complete set of reports and papers to each member attending the meeting.

It will be evident that other combinations of advance mailing and distribution at the annual meeting are possible. Estimating the probable number of copies that would have to be printed under Plans 3 and 4—which in the absence of any experience under these plans can only be roughly approximate—and making some allowance for increased clerical expense incident to distribution under Plans 3 and 4, the saving in the 1921 preprinting bill (\$3380) under these three alternative plans would have been approximately: Plan 2, \$400; Plan 3, \$300; Plan 4, \$1300.

The preprints have been a distinguishing feature of the Society and have contributed greatly to the success of our annual meetings. There is, however, some question as to the advisability of mailing to members copies of reports and papers that they may not desire and that may be destroyed as soon as received. The subject is so important that the views of the members must be obtained for the guidance of the Executive Committee in considering the question of policy involved. Each member is therefore requested to answer the enclosed Questionnaire on Preprints as promptly as possible and not later than April 1. Suggestions in more detail than it is possible to give on the Questionnaire will be welcomed.

### Distribution of Regular Publications

The regular publications distributed to each member are the annual Year Book, the triennial Book of A.S.T.M. Standards, with supplements thereto issued in the two intervening years, and the annual Proceedings. Suggestions have come to the Executive Committee that, notwithstanding these are the regular Society publications, there may be some members who may care to receive only certain of these books, or who are interested only in certain portions of them and would wish to secure only those portions should some plan be adopted of publishing them in sections. The Executive Committee feels that if there is any considerable sentiment in this direction which would result in decreasing the number of copies printed and distributed to an extent that would appreciably decrease the publication costs, it should be ascertained and receive due consideration. The members are accordingly asked to express their views on this topic on the enclosed Questionnaire on Regular Publications as soon as possible and not later than April 1. Complete answers are desired, for the results of this canvass may indicate to the Executive Committee the desirability of making a study of the advantages and disadvantages of issuing the regular publications in sectional or some equivalent form.

### Index of Proceedings, 1913 to 1920

The last general index of the Proceedings was published in 1912 covering the volumes from 1898 to 1912, inclusive. The Committee on Publications has planned to issue an Index of the Proceedings from 1913 to 1920, but deferred publishing on account of high printing costs. These costs have receded and the volume can now be published at a reasonable price. The Executive Committee believes that the Index is essentially a convenience and that it should be published on the basis of sale at cost to members who desire copies. The volume (about 250 pages) will contain a complete subject and author index of committee reports and technical papers. The cost will depend upon the number of orders received; for example, it is estimated that the cost per volume, in cloth binding, would be \$1.50 if 2000 copies were printed and \$1.25 if 3000 copies were printed. Binding in half leather would be \$1.00 extra. These estimates are subject to modification in the light of future costs.

Members who desire to secure a copy of this Index are asked to place their order by returning the enclosed mailing card.



## Scientific Congress at Liege, Belgium

The Association of Engineers, a society composed of former pupils of the Liege School in Belgium, expects to celebrate this year the Seventy-fifth Anniversary of its foundation, to which all members of the Society are cordially invited.

In connection with this celebration it expects to hold a Scientific Congress and a Technical Exhibition. The Congress will be held from June 11 to June 16, 1922, and will include sections of Mining, Metallurgy, Mechanics, Electricity, Chemical Industries, Geology, and Civil Engineering. The Technical Exposition will be held in Liege in the Palais des Beaux-Arts, from June 11 to July 14.

The invitation is extended to all members of our Society to participate in the celebration, by being in attendance if possible or by preparing papers on research work. Communications may be addressed to Association des Engéneurs, 16 Quai des Etats-Unis 16, Liege, Belgium.

## Petroleum Institute Acts on A.S.T.M. Standards

The Advisory Committee on Petroleum Testing Methods of the American Petroleum Institute approved the Standard Method of Test for Flash Point of Volatile Flammable Liquids, together with eight of the twelve methods contained in the report of Committee D-2 on Petroleum Products and Lubricants presented at the last annual meeting. The Institute suggested that Committee D-2 give further consideration to the remaining four methods. The various oil refineries were advised of the committee's action and invited to send in comments or suggestions on the methods for the consideration of Committee D-2.

## Conference on Paving Brick

Under the auspices of the U. S. Department of Commerce, a representative conference on the elimination of sizes and shapes in vitrified paving brick was held in Washington on November 15, 1921, at which the Society was represented by W. E. Emley, Secretary of Committee C-3 on Brick. The conference has recommended that the present 66 sizes and shapes be reduced to 11 by the elimination of those sizes and shapes which are believed to be unnecessary.

The following organizations have been asked to designate representatives to serve upon a permanent committee which will follow up the action taken at the meeting, and consider questions of further simplifications: American Society of Civil Engineers, American Society for Testing Materials, National Paving Brick Manufacturers Association, American Society for Municipal Improvements, American Association of State Highway Officials, Federated American Engineering Societies, Bureau of Standards, Department of Commerce, Bureau of Public Roads, U. S. Chamber of Commerce.

The Society will be represented on this committee by Will P. Blair.

D. L. Quinn has been appointed from Committee D-10 on Shipping Containers to represent the Society on a committee that has been formed by the Bureau of Explosives at the request of the American Railway Association to make an investigation, from an engineering standpoint, of shipping containers. The committee is under the chairmanship of Col. B. W. Dunn.

On invitation of the U. S. Bureau of Mines and the U. S. Bureau of Standards, the Society has appointed J. A. Mathews as representative on an Advisory Committee on the Investigation of the Breakage and Heat Treatment of Rock Drill Steels and Other Alloys Subjected to Similar Impact Stresses.

## Society Membership

During 1921, 377 new members joined the Society, which compares very favorably with the records of previous years, considering the business conditions during the year. The net growth was 158, the membership reported January 1, 1922, being 3025.

We have every reason to expect 1922 to be the most active and prosperous year in our history. Much important work is being undertaken in our committees. The annual meeting in June will beyond question be a most interesting and valuable one. These considerations offer every inducement for individuals and companies interested in "the promotion of knowledge of engineering materials and the standardization of specifications and methods of testing" to become affiliated with us, participate in the work we are doing, and lend their support to it.

As in the past, the Executive Committee looks with confidence to each member to use his best efforts in securing desirable new members. Requests come to us to take up new problems and to reach out further into the field of engineering materials. With this expansion of the Society's work must go a healthy growth of membership, and each member has a responsibility in the development of that growth. Speak to your friends and business associates about the Society and its work; tell them about our publications and our annual meetings. If they are interested have them apply for membership; an application blank is enclosed for this purpose. The Secretary-Treasurer will be glad to furnish information regarding the Society and its activities to any one whom the members may suggest.

There is only one thing to do with the enclosed application blank—place it in the hands of some one whom you can interest in the Society's work. And, DO IT NOW.

## Distribution of 1921 Proceedings

The distribution of the 1921 Proceedings, Volume 21, was completed on January 6. Every member should by this time have received his copy of this volume. If it has not been received, please notify the Secretary-Treasurer at once.

## List of Publications

**Proceedings, Volume 21 (1921).**—The Proceedings are issued in one volume of 1196 pages. The volume contains the committee reports with discussions, new and revised tentative standards and the technical papers with discussions. Prices to non-members: paper \$10, cloth \$11, half-leather \$12.50. To members for extra copies: \$6, \$7 and \$8.50, respectively.

**Book of A.S.T.M. Standards.**—Issued triennially. The 1921 edition (890 pp.) contains 160 standards adopted by the Society. Prices to non-members: cloth \$10, half-leather \$11.50. To members for extra copies: \$7 and \$8.50.

**Book of A.S.T.M. Tentative Standards.**—The 1921 edition (518 pp.) contains 127 tentative standards, issued by the Society. Prices to non-members: paper \$5, cloth \$6. To members: \$3.50 and \$4.50.

**Separate Standards and Tentative Standards.**—Separate copies of all standards and tentative standards are available. The price is 25 cents for a single copy and in lots up to 50. Larger quantities are furnished at lower prices.

**Complete Sets of Proceedings** from 1902 to 1921, inclusive (with the exception of Vol. I and III). Special prices are made to members for extra copies and for complete sets. Binding in paper, cloth or half-leather.

**Miscellaneous.**—Volume of annual reports of Committee E on Preservative Coatings for Structural Materials for the years 1903-1914 (567 pp.). Price, \$5.00 in cloth.

Progress report of Joint Committee on Specifications for Concrete and Reinforced Concrete (1921). Price, \$1.50.

Inquiries and orders should be directed to:

AMERICAN SOCIETY FOR TESTING MATERIALS  
1315 Spruce Street, Philadelphia

## A.S.T.M. Committee Activities

Space in the BULLETIN is reserved for items of interest about committee activities. Officers of committees are invited to prepare information of suitable character for publication. A schedule of committee meetings for three months in advance will be published in each issue.

### New Committee on Corrosion of Non-Ferrous Alloys

The Executive Committee has authorized the appointment of a new standing committee to be known as Committee B-3 on Corrosion of Non-Ferrous Metals and Alloys, which will occupy a position in the field of non-ferrous metals comparable to that of Committee A-5 on Corrosion of Iron and Steel in the field of ferrous metals. The work of the Committee on Corrosion of the National Research Council, referred to on page 2, has shown that there are a number of practical corrosion problems that can be studied by the new committee, for example: Corrosion of pipe in pump lines; corrosion of pipe subject to sulfite solutions; corrosion of condenser tubes and turbine blades; corrosion of alloys in mine water and ammonia solutions; study of intercrystalline brittleness; and toxic effect of corrosive action on liquids coming in contact with corroded metal.

A representative committee of producers and non-producers will be organized at an early date under the temporary chairmanship of Vice-President George K. Burgess.

### Paint-Holding Properties of Metals to be Studied

Committee D-1 on Preservative Coatings for Structural Materials will cooperate with Committee A-5 on Corrosion of Iron and Steel in a study of the paint-holding properties of various ferrous metals. This investigation was proposed by Committee A-5, with the suggestion that it furnish different kinds of ferrous metal panels for making the tests, and that Committee D-1 select, prepare, and apply the several kinds of paint to be used. A joint committee consisting of three members from each standing committee has been appointed to formulate plans for the investigation. J. A. Aupperle, D. M. Buck and H. E. Smith will represent Committee A-5, and Committee D-1 will be represented by F. P. Cheesman, H. A. Gardner and R. L. Hallett. Mr. Hallett will serve as chairman of the joint committee.

### Waterproofing Committee Meets

A meeting of Committee D-8 on Waterproofing was held in New York City on January 10, at which problems involved in reorganization and extension of its activities were considered. The committee desires to increase the representation of consuming interests on the committee, and the names of nine proposed new members were sent to letter ballot for election.

Reports of various sub-committees were received, and it is expected that at the coming Annual Meeting the committee will recommend to the Society tentative methods of examining felted and woven fabrics saturated with bituminous substances for use in waterproofing and tentative methods for examining grout and bituminous mastics.

C. N. Forrest, vice-chairman of the committee, is acting chairman pending the election of a permanent chairman. Prévost Hubbard has been elected secretary.

### Committee Recommends Distillation Thermometer

At a meeting of Committee D-15 on Thermometers, held at the Society headquarters on January 18, considerable attention was given to methods of temperature measurement with particular reference to distillation tests. At this meeting the following resolution was passed to which the committee desires to give publicity:

*Resolved*, That it is the sense of this committee that a 76-mm. immersion thermometer should be adopted for distillation tests.

### Schedule of Committee Meetings

Date	Committee	Place
February 10	E-8 on Nomenclature and Definitions	Philadelphia.
February 17	E-1 on Methods of Testing	Philadelphia.
February	C-6 on Drain Tile	Cleveland.
February	D-5 on Coal	
March 1	D-15 on Thermometers	Philadelphia.
March 2-3	C-7 on Lime	New York City.
March 2	C-11 on Gypsum	Chicago.
March 3	A-1 on Steel	Philadelphia.
March 3	D-13 on Textile Materials	Providence.
March 8	A-2 on Wrought Iron	Philadelphia.
March	C-3 on Brick	Troy.
March	D-14 on Screen Wire Cloth	

**Committee A-1 on Steel** will hold its next meeting at the Society headquarters on March 3.

On January 12 and 13, a number of sub-committees of Committee A-1 held meetings. At the same time, a meeting was held of a joint-committee composed of Sub-Committees II on Structural Steel for Bridges, Buildings and Rolling Stock, III on Structural Steel for Ships, and XI on Boiler Steel, to consider the extension of the Tables of Permissible Percentages of Overweight for plates 144 in. wide and over, and the advisability of preparing tolerances for circular and sketch plates.

At a meeting of the Advisory Committee held January 13, it was voted to recommend to the Executive Committee that certain of the steel specifications be submitted to the American Engineering Standards Committee for approval.

**Committee A-5 on Corrosion of Iron and Steel** is undergoing some reorganization. J. H. Gibboney, Vice-Chairman of the Committee, is acting chairman in the place of S. S. Voorhees, deceased. G. K. Burgess, Chairman of Sub-Committee II on Preservative Metallic Coatings, has resigned; H. S. Rawdon now represents the Metallurgical Division of the Bureau of Standards and has been appointed chairman pro tem. of Sub-Committee II.

**Committee C-1 on Cement** held a meeting at the Engineering Societies Building, New York City, on January 4, to discuss the progress report of the Joint Committee on Standard Specifications for Concrete and Reinforced Concrete. Reports were also presented by the sub-committees on Soundness and Constancy of Volume, Time of Setting, and Strength.

**Committee C-2 on Reinforced Concrete** has held two well-attended meetings at the Society headquarters on October 28 and December 21, at which the principal business was the discussion in detail of the progress report of the Joint Committee on Standard Specifications for Concrete and Reinforced Concrete. The committee expects to present shortly, for the consideration of the Joint Committee, a full discussion of the proposed specifications. The committee has also discussed the program of tests prepared by a special committee of Committees A-1 and C-2 on Investigation of Concrete Reinforcement Bars.

One of the sub-committees of Committee C-2 is preparing a report on the subject of Rules for Inspection of Concrete. Work on this report is well advanced and it is expected to present it for discussion of the main committee at the next meeting.

**Committee C-3 on Brick** held a meeting on November 30 at Troy, N. Y., at which a number of criticisms of the Tentative Specifications for Clay Sewer Brick were considered. In view of these criticisms certain amendments were suggested, and were referred to the Sub-Committee on Sewer Brick.

It was reported that investigations are now under way on three items: A research to determine the fire resistance of



brick walls, being conducted at the Bureau of Standards at Washington; a research to determine the strength of brick walls conducted by the Bureau of Standards at Pittsburgh; and a research on the use of furring on brick walls.

W. E. Emley reported on the Conference on elimination of sizes and shapes in vitrified paving brick, which was held in Washington on November 15. The committee referred the recommendations of the conference as reported on page 5 to the Sub-Committee on Paving Brick, with a statement that it was the sense of the meeting that they be complied with.

The committee will probably hold its next meeting in Troy, some time in March.

**Committee C-6 on Drain Tile** is planning to hold a meeting in February, in connection with the meeting of the American Concrete Institute at Cleveland. At this meeting reports will be presented on the status of the research on the effect of acid and alkali solutions on the durability of concrete tile. The principle subject which the committee is investigating is that of suitable test requirements for tile which are likely to be subjected to injurious soil conditions.

**Committee C-7 on Lime** held a well-attended and interesting meeting at the Society headquarters on December 1 and 2. The evening session of December 1 was in the nature of a Smoker to which members of the American Institute of Architects, Philadelphia Plasterers' Association, and other organizations were invited. At the committee meeting on December 2, as well as at meetings of sub-committees, an extensive program of work was outlined for the current year.

The next meeting of the committee is scheduled to be held on March 2 and 3 at Columbia University.

**Committee C-8 on Refractories** is preparing to conduct investigations to determine what laboratory tests are most important for basic refractories as follows: Testing different basic refractories in practice; testing the same product in the laboratory, comparing the laboratory tests with the practical tests; and developing those properties which are most important to increase the life of these refractories. A report outlining the different methods for analyzing magnesite refractories was presented by the Sub-Committee on Chemical Analysis at a meeting of the committee held at Mellon Institute, Pittsburgh, Pa., on December 5.

W. A. Hull explained at this meeting the status of the work of the Sub-Committee on Thermal Conductivity and Expansion, and expressed the belief that it was not thermal conductivity that was really desired, but some factor which covered the rate at which heat would be transmitted to the surface. W. H. Fulweiler explained the importance to the gas industry of the determination of the flow of heat through refractory materials. It was brought out in the discussion that the expansion problem should be separated from the conductivity problem and that conductivity was not the only factor. It was decided that for the present the sub-committee would confine itself to a study of conductivity and that a new sub-committee would be appointed to study thermal expansion.

The Sub-Committee on Nomenclature reported that it had carefully considered definitions of clay, fire clay, and shale. The work of this sub-committee will be closely related to that of the sub-committee of Committee E-8 on Nomenclature and Definitions that is considering the term "clay."

It was decided that a special sub-committee be appointed to consider the subject of glass refractories and the desirability of establishing a new sub-committee to consider specifications for this class of materials.

**Committee C-9 on Concrete and Concrete Aggregates** held a well-attended meeting at the Society headquarters on November 1, to consider the Progress Report of the Joint Committee on Standard Specifications for Concrete and Reinforced Concrete. The sections of the report dealing with definitions, materials, and proportioning and mixing were discussed in some detail, and recommendations concerning them have been forwarded to the Joint Committee.

**Committee C-10 on Hollow Building Tile** held a meeting on November 1 at Chicago. The relation between the strength of individual tile units and a built-up wall was discussed, and

it was brought out that such a relationship must be established before Committee C-10 could arrive at definite specifications for hollow tile.

The Sub-Committee on Insulation and Acoustics reported considerable progress. It was suggested that the influence of prominent musicians be brought to bear upon those who were interested in this subject, so that extensive tests might be made on the acoustical properties of hollow tile.

It was reported by the chairman of the Sub-Committee on Absorption and Frost Resistance that the work which is being carried on at the Bureau of Standards Laboratories in Washington on this subject is progressing very favorably.

The work of the Sub-Committee on Fire Tests, as reported by P. H. Bevier, chairman, is likewise being carried on at the Bureau of Standards Laboratories in Washington, and is progressing favorably.

A Sub-Committee on Fireproofing was appointed to consist of P. H. Bevier, chairman, and D. C. Haeger, R. E. Schmidt, and S. H. Ingberg, to draw up specifications on fireproofing.

**Committee on C-11 on Gypsum** held a meeting in Washington on October 25 and 26, at which a number of questions in reference to the tentative specifications under the jurisdiction of the committee were disposed of. A number of matters still pending include the following:

Specifications for Crushed and Ground Gypsum without reference to the terms "crushed" and "ground."

Research upon the use of "anhydrite" gypsum in the manufacture of Portland cement.

Tentative specifications for gypsum partition, furring and fireproofing tile.

Regulations to govern the placing and installation of reinforced gypsum floor and roof constructions.

Revision of the tentative specifications for gypsum wall and plaster board.

Tentative methods for the determination of anhydrite in gypsum.

Tentative methods for the microscopic examination of gypsum.

Tentative methods for determination of sand-carrying capacity of gypsum.

Consideration of use of word "lath" instead of "board" when referring to plaster board.

Additional definitions of terms used in the gypsum industry.

**Committee D-1 on Preservative Coatings for Structural Materials**, at a meeting held at Society headquarters on October 4, received reports from a number of sub-committees, a few of which are mentioned below:

**Sub-Committee III on Testing of Paint Vehicles:** This sub-committee hopes to be able to draw up specifications for Soya bean oil and Perilla oil. The New York Chamber of Commerce has specifications for Soya bean oil which are largely used by the consumers of this oil in the food and soap industries. It was suggested that two separate specifications might be desirable—one for the use of Soya bean oil in the paint industry, and the other for its use in other industries.

**Sub-Committee IX on Varnish:** The sub-committee has undertaken investigation of certain tests which may be suitable for use as standard varnish tests. It is expected to have a complete report of this work for the next meeting.

**Sub-Committee XI on Paint Thinners Other than Turpentine:** This sub-committee is considering specifications for petroleum distillates and coal tar. The sub-committee is not entirely in accord with the specifications for petroleum distillates and coal-tar distillates issued by the United States Government Inter-Departmental Committee. It was suggested that cooperation between Sub-Committee XI and the United States Government Inter-Departmental Committee be arranged so as to obtain, if possible, the adoption of a single standard.

**Sub-Committee XV on Specifications for Pigments:** The sub-committee is considering the preparation of specifications for such pigments as lithopone, lampblack, carbon black, chrome yellow, chrome green and Prussian blue. It was brought out that the statement that 200-mesh screens should be used for fineness tests because finer screens cannot be obtained, no longer applies, as assurance has been received that manufacturers are now prepared to furnish 325-mesh screens for this purpose.

Committee XVIII on Physical Properties of Materials: Work is now under way which it is hoped will result in defining color in fixed terms.

**Committee D-2 on Petroleum Products and Lubricants** held a meeting in Chicago on December 7 in connection with a meeting of the American Petroleum Institute. Mention of the following sub-committee reports presented at this meeting will be of interest:

**Sub-Committee III on Paraffin Wax:** Two methods for determination of oil and moisture in paraffin wax were submitted, and criticism of the members invited.

**Sub-Committee IV on Grease:** The sub-committee hopes to have a suitable method for testing grease for presentation at the next meeting.

**Sub-Committee VIII on Distillation:** The sub-committee hopes to have a method for distillation of gas oil prepared for presentation at the next meeting.

A new Sub-Committee on Organic Acidity has been appointed, under the chairmanship of W. H. Herschel. W. F. Faragher, S. E. Campbell, W. H. Fulweiler and R. E. Haylet are the other members.

**Committee D-4 on Road and Paving Materials,** at a meeting held in November, gave consideration to the Progress Report of the Joint Committee on Standard Specifications for Concrete and Reinforced Concrete. The sections dealing with definitions, materials, and proportioning and mixing received considerable discussion, and recommendations have been forwarded to the Joint Committee concerning these sections.

The question of recommending certain of the existing standards of the Society, under the jurisdiction of Committee D-4, to the American Engineering Standards Committee for adoption was referred to a sub-committee for report at the next meeting of the committee.

**Committee D-5 on Coal** has established cooperation with the Committee on Fuel of the National Association of Purchasing Agents, and a Committee on Standard Forms of Fuel Specifications, sub-committee of the Prime Movers Committee of the National Electric Light Association, for the purpose of considering the formulation of specifications for standard anthracite and bituminous coal sizes, and contracts for the purchase of coal for use in steam power plants. This work is under the jurisdiction of Sub-Committee IV on Forms of Specifications, Hubb Bell, chairman, which held a meeting on January 10 in New York City. This sub-committee will hold another meeting in connection with the meeting of Committee D-5 in February.

**Committee D-9 on Electrical Insulating Materials** met on November 22 in the Engineering Societies Building, New York City. Criticisms of the present Tentative Methods of Testing Molded Insulating Materials suggest that the committee take up the matter of making impact tests on molded materials. A design of an impact testing machine was submitted, and it was suggested that the members of the committee comment upon this subject. Comments were likewise solicited on a method of making high frequency tests on molded insulation.

The committee is working on tests for the following sheet insulating materials: Flexible materials; non-flexible materials; untreated paper and other similar materials; rods, tubing, and special shapes. The committee intends to accumulate data covering various methods of test for these four sheet insulating materials.

**Committee D-10 on Shipping Containers** is giving attention to specifications for tight barrels through its Sub-Committee V on Tight Barrels. This sub-committee held a meeting in Atlantic City on November 9. It was the unanimous opinion of those present that specifications should prescribe among others the following points: The quality of the stave and heading; the moisture content of the staves and heading when made into barrels; and the physical properties of hoop steel as well as gage and width.

The idea of a general specification similar to that for boxes as drawn up by Committee D-10 was suggested and received the hearty approval of those present.

**Committee D-11 on Rubber Products** held a meeting on November 21 in the Engineering Societies Building, New York City, at which the work of the sub-committees was reviewed. The chairman announced that the Executive Committee of the Society had approved the assumption of the Joint Rubber Insulation Committee's work by the Society, and had assigned it to Committee D-11. In order to handle the work, a new Sub-Committee on Chemical Analysis of Rubber Products will be formed with C. R. Boggs as chairman.

A new sub-committee will be appointed to undertake the preparation of specifications for weather-strip for railroad cars and buildings.

The Sub-Committee on Cold Water Hose will be asked to compare our Tentative Specifications for Fire Hose with those issued by the Bureau of Standards, as contained in Circular No. 114.

A Sub-Committee on Pump Valves is drafting a specification covering five classes of pump valves for use in pumping fluids not injurious to rubber.

**Committee D-13 on Textile Materials,** at a meeting held at the rooms of the Providence Engineers Society, Providence, R. I., October 28 and 29, gave consideration to a draft of specifications for imperfections and tolerances for 60-in. 174-oz. square-woven builder fabric. This subject was referred back to the sub-committee for review, a report to be submitted at the meeting of the committee in March.

The committee is engaged in preparing additional definitions of terms relating to textile materials, and on a preparation of definite suggestions for measuring and testing cotton fibers.

**Committee D-14 on Screen Wire Cloth** has prepared a draft of Specifications for Non-Ferrous Screen Wire Cloth, which has been circulated among its members for criticism. The question as to the proper naming of wire cloth will be taken up with Committee E-8 on Nomenclature and Definitions and Committee B-2 on Non-Ferrous Metals and Alloys. The next meeting of this committee will be held in March.

**Committee E-1 on Methods of Testing** has been engaged principally in assigning to sub-committees consideration of the various methods of test now before the Society. A sub-committee, under the chairmanship of H. F. Moore, is engaged in revising our present Standard Methods of Mechanical Testing of Metallic Materials, and will shortly take up the work of reviewing a number of mechanical tests. This sub-committee has already accomplished a large amount of work and will be prepared to present an interesting report at the next meeting of Committee E-1.

Other sub-committees are in process of organization or enlargement, among which might be mentioned the Sub-Committee on Consistency and Allied Properties, under the chairmanship of A. T. Goldbeck, the Sub-Committee on Volatile Properties, under the chairmanship of A. W. Dow, and the Sub-Committee on Classification of Materials According to Size, under the chairmanship of G. W. Thompson.

The next meeting of Committee E-1 will be held at the Society headquarters on February 17.

**Committee E-8 on Nomenclature and Definitions** is engaged in the formation of a number of sub-committees to take up the study of a number of definitions of terms. A sub-committee, under the chairmanship of F. M. Farmer, is studying the definitions of specific gravity. A second sub-committee, under the chairmanship of A. S. Watts, is working on the unification of the several definitions of "clay" and similar terms. Two new sub-committees are in process of organization, under the chairmanship of L. R. Ferguson, which will take up the formulation of definitions of terms relating to concrete, such as sand, silt, loam, broken stone, etc.

The next meeting of Committee E-8 will be held at the Society headquarters on February 10.